[11150/93]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	Examiner: Timothy A. Brainard
Marc-Michael MEINECKE et al.	
For: MEASURING DEVICE FOR A MOTOR VEHICLE	
	Art Unit: 3662
Filed: May 7, 2007	
	Confirmation No.: 4067
Serial No.: 10/577,187	

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Date: November 17, 2010
Signature: /Julie Forero/

APPEAL BRIEF PURSUANT TO 37 C.F.R. § 41.37

SIR:

On September 17, 2010, Appellants filed a Notice of Appeal from the last decision of the Examiner contained in the Final Office Action dated June 17, 2010 in the above-identified patent application.

In accordance with 37 C.F.R. § 41.37, this brief is submitted in support of the appeal of the rejections of claims 26 to 52. For at least the reasons set forth below, the final rejections of claims 26 to 52 should be reversed.

1. REAL PARTIES IN INTEREST

The real parties in interest in the present appeal are VOLKSWAGEN AG of Wolfsburg in the Federal Republic of Germany and S.M.S. SMART MICROWAVE SYSTEMS GmbH of Braunschweig in the Federal Republic of Germany, which are the assignees of the entire right, title and interest in and to the present application.

2. RELATED APPEALS AND INTERFERENCES

There are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignees, VOLKSWAGEN AG and S.M.S. SMART MICROWAVE SYSTEMS GmbH, "which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal."

3. STATUS OF CLAIMS

Claims 1 to 25 have been canceled.

Claims 26 to 52 are pending.

Claims 26, 28 to 30 and 40 to 43 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,888,492 ("Voles").

Claims 27, 31 to 39 and 44 to 52 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Voles and P.C.T. International Published Patent Application No. WO 02/31529 ("Mende et al.").

A copy of the appealed claims, *i.e.*, claims 26 to 52, is attached hereto in the Claims Appendix.

4. STATUS OF AMENDMENTS

In response to the Final Office Action dated June 17, 2010, Appellants submitted a "Reply Under 37 C.F.R. § 1.116" ("the Reply") on August 17, 2010. The Reply did not include amendments to the claims. As such, it is Appellants' understanding that the claims as included in the annexed "Claims Appendix" accurately reflect the currently appealed claims.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The claims on appeal include two independent claims, *i.e.*, claim 26 and 40.

Independent claim 26 relates to a measuring device 30, 50 for at least one of (a) measuring a distance R between the measuring device 30, 50 and at least one object 20 and (b) measuring a speed difference v between the measuring device 30, 50 and the at least one object 20. *Specification*, page 8, lines 16 to 24; page 9, lines 5 to 14; page 15, lines 9 to 23; and Figures 1 to 5. Claim 26 recites that the measuring device 30, 50 includes an emission device 35, 55 adapted to send a transmission signal s(t), sl(t) that includes at least two signal portion sequences, each of a first signal portion sequence A(t) and a second signal

portion sequence B(t) including at least two temporally alternating signal portions, at least two signal portions of a signal portion sequence A(t), B(t) differing in frequency $f_T(t)$ by one differential frequency, wherein the differential frequency $f_{Hub,A}/(N-1)$ of the first signal portion sequence A(t) differing from the differential frequency $f_{Hub,B}/(N-1)$ of the second signal portion sequence B(t). *Specification*, page 9, line 5 to page 10, line 31; page 15, lines 9 to 23; and Figures 1 to 5.

Independent claim 40 relates to a method for at least one of (a) measuring a distance R between an emission device 35, 55 and at least one object 20 and (b) measuring a speed difference v between the emission device 35, 55 and the at least one object 20. *Specification*, page 8, lines 16 to 24; page 9, lines 5 to 14; page 15, lines 9 to 23; and Figures 1 to 5. Claim 40 recites that the method includes sending a transmission signal s(t), sl(t) by the emission device 35, 55 including at least two signal portion sequences, each of a first signal portion sequence A(t) and a second signal portion sequence B(t) including at least two temporally alternating signal portions, at least two signal portions of a signal portion sequence A(t), B(t) differing in frequency $f_T(t)$ by a differential frequency, the differential frequency $f_{Hub,A}/(N-1)$ of the first signal portion sequence A(t) differing from the differential frequency $f_{Hub,B}/(N-1)$ of the second signal portion sequence B(t). *Specification*, page 9, line 5 to page 10, line 31; page 15, lines 9 to 23; and Figures 1 to 5.

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 26, 28 to 30 and 40 to 43 are patentable under 35 U.S.C. § 103(a) over Voles.

B. Whether claims 27, 31 to 39 and 44 to 52 are patentable under 35 U.S.C. § 103(a) over the combination of Voles and Mende et al.

7. ARGUMENTS

A. Rejection of Claims 26, 28 to 30 and 40 to 43 Under 35 U.S.C. § 103(a)

Claims 26, 28 to 30 and 40 to 43 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,888,492 ("Voles"). It is respectfully submitted that Voles does not render unpatentable the present claims for at least the following reasons.

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103(a), the prior art must teach or suggest each element of the claim. *See Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir. 1990), *cert. denied*, 111 S. Ct. 296 (1990); *In re Bond*, 910 F.2d 831, 834 (Fed. Cir. 1990). In addition, as clearly indicated by the Supreme

Court, it is "important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *See KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007). Further, the Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. M.P.E.P. §2143.

Claim 26 relates to a measuring device for at least one of (a) measuring a distance between the measuring device and at least one object and (b) measuring a speed difference between the measuring device and the at least one object, including an emission device adapted to send a transmission signal that includes at least two signal portion sequences, each of a first signal portion sequence and a second signal portion sequence including at least two temporally alternating signal portions, at least two signal portions of a signal portion sequence differing in frequency by one differential frequency, in which *the differential frequency of the first signal portion sequence differing from the differential frequency of the second signal portion sequence*.

Voles does not disclose, or even suggest, all of the claimed features of claim 26. Instead, Voles merely describes that a radar frequency is swept in a stepwise manner. Abstract; and col. 2, lines 14 to 20. In particular, Figure 1, represented below, shows a stepwise frequency graph having a ***single*** increment δF.

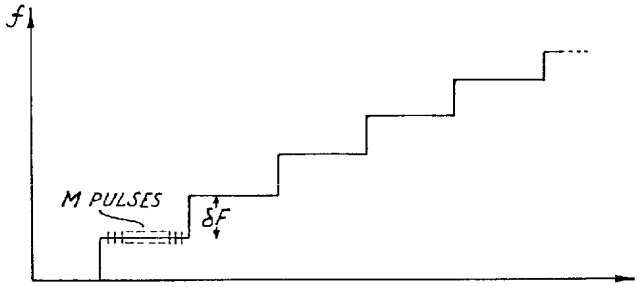

FIG. 1

Therefore, Voles does not disclose, or even suggest, the feature of *a differential frequency of a first signal portion sequence differing from a differential frequency of a second signal portion sequence.*

The Final Office Action at page 3 asserts that column 5, lines 30 to 49 disclose this feature of claim 26. However, the cited section of Voles merely describes four (or more) interleaved sequences of monotonic frequencies. A first sequence (I) includes the frequencies f_1, f_5, . . . f_{2N-3}, a second sequence (II) includes the frequencies f_2, f_6, . . . f_{2N-2}, a third sequence (III) includes the frequencies f_3, f_7, . . . f_{2N-1}, and a fourth sequence (IV)

includes the frequencies f_4, f_8, . . . f_{2N}. Nothing in the foregoing description of the third succession (c) constitutes a disclosure, or even a suggestion, that a differential frequency of a first signal portion sequence differs from a differential frequency of a second signal portion sequence.

> Nonetheless, the Final Office Action at page 3 states:
> Voles teaches (col 5, lines 30-46) interleaving 4 sequences of pulses (I II III IV). Voles then goes on [to] state that the sequences could [be] arranged in ascending or descending order or as a mixture of both (col 5, lines 47 to 49). Interleaving pulses in the sequence of (I IV) and then followed by the sequence (II III) is a differential frequency of a first signal portion sequence differing from a differential frequency of a second signal portion sequence as suggested by Voles.

The Final Office Action proposes interleaving sequences I, IV of Voles, followed by interleaving sequences II, III of Voles. In any event, it is entirely unclear how Voles's statement that "[t]he sequences described in examples (a), (b) and (c) above ay [sic] be arranged in ascending or descending order or as a mixture of both" might be considered to have any bearing on whether Voles discloses, or even a suggests, that a differential frequency of a first signal portion sequence differs from a differential frequency of a second signal portion sequence. In addition, it is entirely unclear how Voles's statement that "[t]he sequences described in examples (a), (b) and (c) above ay [sic] be arranged in ascending or descending order or as a mixture of both" might be considered to constitute a disclosure, or even a suggestion, of "[i]nterleaving pulses in the sequence of (I IV) and then followed by the sequence (II III)" as stated in the Final Office Action. It should be noted that the technical meaning of the sequences is to evaluate the echo signals from the sequences separately. Therefore, a hypothetical combination of sequences to form hypothetical new sequences, as apparently suggested in the Final Office Action, is not in conformity with the technical discussion by Voles. In any event, it is entirely unclear how "[i]nterleaving pulses in the sequence of (I IV) and then followed by the sequence (II III)," as stated in the Final Office Action, might be considered to constitute "a differential frequency of a first signal portion sequence differing from a differential frequency of a second signal portion sequence."

Further, the Final Office Action at page 6 states that "if one were to send f1=f2-delta f1=f3-(2 delta f)=f4-(3 delta f) in the sequene [sic] of (f1,f4) being the first portion and (f2,f3) being the second portion the differential frequency in the first portion would be (3 delta f) and the differential frequency would be (delta f) as is suggested for N=2 in col 5 of Voles." It is entirely unclear how Voles's statement at column 2, lines 17 to 22

that "delta f = F/2N" might be considered to constitute a disclosure, or even a suggestion, of "f1=f2-delta f1=f3-(2 delta f)=f4-(3 delta f) in the sequene [sic] of (f1,f4) being the first portion and (f2,f3) being the second portion," as stated in the Final Office Action. In any event, it is entirely unclear how "f1=f2-delta f1=f3-(2 delta f)=f4-(3 delta f) in the sequene [sic] of (f1,f4) being the first portion and (f2,f3) being the second portion," as stated in the Final Office Action, might be considered to constitute "a differential frequency of a first signal portion sequence differing from a differential frequency of a second signal portion sequence."

Moreover, regardless of any interleaving or arrangement in ascending and/or descending order, ***the differential frequency of each sequence (I II III IV) remains constant at δF***, as explicitly shown in Figure 1 of Voles. In this regard, Voles at column 1, lines 31 to 35 states the following:

> In an embodiment of the invention the frequencies in each said sequence interleave with the frequencies in another said sequence and, in particular, the frequencies in each said sequence may interleave with the frequencies in the immediately preceding and or succeeding sequence.

Even if sequences (I IV) are interleaved, and then sequences (II III) are interleaved, as suggested by the Final Office Action, the differential frequency of each sequence remains unchanged and ***constant at δF***. Thus, it is entirely unclear how or why Voles is considered to disclose, or even suggest, *a differential frequency of a first signal portion sequence differing from a differential frequency of a second signal portion sequence*.

Thus, nowhere does Voles disclose a first signal sequence having a differential frequency ***different*** from a second signal sequence. Moreover, Voles states that "the present embodiments are concerned with *manipulating the spectra* rather than improvements to the basic tracking technique." Col. 3, lines 45 to 48 (emphasis added). Therefore, Voles does not disclose, or even suggest, the feature of *a differential frequency of a first signal portion sequence differing from a differential frequency of a second signal portion sequence*.

As for claims 28 to 30, which ultimately depend from claim 26 and therefore include all of the features included in claim 26, it is respectfully submitted that Voles does not render unpatentable these dependent claims for at least the same reasons more fully set forth above.

Claim 40 includes features analogous to those of claim 26. Accordingly, Voles does not render unpatentable claim 40 for at least the same reasons set forth above.

As for claims 41 to 43, which ultimately depend from claim 40 and therefore include all of the features included in claim 40, it is respectfully submitted that Voles does not render unpatentable these dependent claims for at least the same reasons more fully set forth above.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

B. Rejection of Claims 27, 31 to 39 and 44 to 52 Under 35 U.S.C. § 103(a)

Claims 27, 31 to 39 and 44 to 52 were rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Voles and PCT International Published Patent Application No. WO 02/31529 ("Mende et al."). It is respectfully submitted that the combination of Voles and Mende et al. does not render unpatentable the presently pending claims for at least the following reasons.

Claims 27 and 31 to 39 ultimately depend from claim 26, and claims 44 to 52 ultimately depend from claim 40. As more fully set forth above, Voles does not disclose, or even suggest, all of the features included in claims 26 and 40. Mende et al. does not cure the deficiencies of Voles. Accordingly, it is respectfully submitted that the combination of Voles and Mende et al. does not render unpatentable dependent claims 27, 31 to 39 and 44 to 52.

In view of all of the foregoing, reversal of this rejection is respectfully requested.

8. CLAIMS APPENDIX

A "Claims Appendix" is attached hereto and appears on the four (4) pages numbered "Claims Appendix 1" to "Claims Appendix 4."

9. EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 C.F.R. §§ 1.130, 1.131 or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal. An "Evidence Appendix" is nevertheless attached hereto and appears on the one (1) page numbered "Evidence Appendix."

10. RELATED PROCEEDINGS APPENDIX

As indicated above in Section 2, "[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the

undersigned to be known to Appellants or the assignees, VOLKSWAGEN AG and S.M.S. SMART MICROWAVE SYSTEMS GmbH, 'which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.'" As such, there are no "decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]" to be submitted. A "Related Proceedings Appendix" is nevertheless attached hereto and appears on the one (1) page numbered "Related Proceedings Appendix."

11. CONCLUSION

For at least the reasons indicated above, Appellants respectfully submit that the art of record does not disclose or suggest the subject matter as recited in the claims of the above-identified application. Accordingly, it is respectfully submitted that the subject matter as set forth in the claims of the present application is patentable.

In view of all of the foregoing, reversal of all of the rejections set forth in the Final Office Action is therefore respectfully requested.

Respectfully submitted,

Dated: November 17, 2010

By: /Clifford A. Ulrich/
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CLAIMS APPENDIX

26. A measuring device for at least one of (a) measuring a distance between the measuring device and at least one object and (b) measuring a speed difference between the measuring device and the at least one object, comprising:

an emission device adapted to send a transmission signal that includes at least two signal portion sequences, each of a first signal portion sequence and a second signal portion sequence including at least two temporally alternating signal portions, at least two signal portions of a signal portion sequence differing in frequency by one differential frequency, wherein the differential frequency of the first signal portion sequence differing from the differential frequency of the second signal portion sequence.

27. The measuring device according to claim 26, wherein the measuring device is adapted to be arranged in a motor vehicle.

28. The measuring device according to claim 26, further comprising a reception device adapted to receive a reflection signal of the transmission signal reflected by the at least one object.

29. The measuring device according to claim 28, further comprising a mixer adapted to mix the first signal portion sequence with a portion of the first signal portion sequence of the reflection signal reflected by the at least one object to form a first mixed signal.

30. The measuring device according to claim 29, further comprising an evaluation device adapted to ascertain one of (a) a measured frequency and (b) frequencies of the first mixed signal.

31. The measuring device according to claim 30, wherein the evaluation device is adapted to determine the distance between the measuring device and the at least one object as a function of the one of (a) the measured frequency and (b) the frequencies of the first mixed signal.

32. The measuring device according to claim 30, the evaluation device is adapted to determine the speed difference between the measuring device and the at least one object as a

function of the one of (a) the measured frequency and (b) the frequencies of the first mixed signal.

33. The measuring device according to claim 29, wherein the mixer is adapted to mix the second signal portion sequence with a portion of the second signal portion sequence of the reflection signal reflected by the at least one object to form a second mixed signal.

34. The measuring device according to claim 33, wherein the evaluation device is adapted to ascertain the one of (a) a measured frequency and (b) frequencies of the second mixed signal.

35. The measuring device according to claim 34, wherein the evaluation device is adapted to determine the distance between the measuring device and the at least one object as a function of the one of (a) the measured frequency and (b) the frequencies of the first mixed signal and of a dominating frequency of the second mixed signal.

36. The measuring device according to claim 34, wherein the evaluation device is adapted to determine the speed difference between the measuring device and the at least one object as a function of the one of (a) the measured frequency and (b) the frequencies of the first mixed signal and of the one of (a) the measured frequency and (b) the frequencies of the second mixed signal.

37. The measuring device according to claim 33, wherein the evaluation device is adapted to determine a difference between a phase of the first mixed signal and a phase of the second mixed signal.

38. The measuring device according to claim 37, wherein the evaluation device is adapted to determine the distance between the measuring device and the at least one object as a function of the difference between the phase of the first mixed signal and the phase of the second mixed signal.

39. The measuring device according to claim 37, wherein the evaluation device is adapted to determine the speed difference between the measuring device and the at least one

object as a function of the difference between the phase of the first mixed signal and the phase of the second mixed signal.

40. A method for at least one of (a) measuring a distance between an emission device and at least one object and (b) measuring a speed difference between the emission device and the at least one object, comprising:

sending a transmission signal by the emission device including at least two signal portion sequences, each of a first signal portion sequence and a second signal portion sequence including at least two temporally alternating signal portions, at least two signal portions of a signal portion sequence differing in frequency by a differential frequency, the differential frequency of the first signal portion sequence differing from the differential frequency of the second signal portion sequence.

41. The method according to claim 40, further comprising receiving a reflection signal of the transmission signal reflected by the at least one object.

42. The method according to claim 41, further comprising mixing the first signal portion sequence with a portion of the first signal portion sequence of the reflection signal reflected by the at least one object to form a first mixed signal.

43. The method according to claim 42, further comprising ascertaining a dominating frequency of the first mixed signal.

44. The method according to claim 43, further comprising determining the distance between the emission device and the at least one object as a function of the dominating frequency of the first mixed signal.

45. The method according to claim 43, further comprising determining the speed difference between the emission device and the at least one object as a function of the dominating frequency of the first mixed signal.

46. The method according to claim 41, further comprising:

mixing the second signal portion sequence with a portion of the second signal portion sequence of the reflection signal reflected by the at least one object to form a second mixed signal; and

ascertaining a dominating frequency of the second mixed signal.

47. The method according to claim 46, further comprising determining the distance between the emission device and the at least one object as a function of a dominating frequency of the first mixed signal and the dominating frequency of the second mixed signal.

48. The method according to claim 46, further comprising determining the speed difference between the emission device and the at least one object as a function of a dominating frequency of the first mixed signal and the dominating frequency of the second mixed signal.

49. The method according to claim 46, further comprising determining a difference between a phase of the first mixed signal and a phase of the second mixed signal.

50. The method according to claim 49, further comprising determining the distance between the emission device and the at least one object as a function of the difference between the phase of the first mixed signal and the phase of the second mixed signal.

51. The method according to claim 49, further comprising determining the speed difference between the emission device and the at least one object as a function of the difference between the phase of the first mixed signal and the phase of the second mixed signal.

52. The method according to claim 40, wherein the emission device is arranged in a motor vehicle.

EVIDENCE APPENDIX

No evidence has been submitted pursuant to 37 C.F.R. §§1.130, 1.131, or 1.132. No other evidence has been entered by the Examiner or relied upon by Appellants in the appeal.

RELATED PROCEEDINGS APPENDIX

As indicated above in Section 2 of this Appeal Brief, "[t]here are no other prior or pending appeals, interferences or judicial proceedings known by the undersigned, or believed by the undersigned to be known to Appellants or the assignees, VOLKSWAGEN AG and S.M.S. SMART MICROWAVE SYSTEMS GmbH, 'which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.'" As such, there are no "decisions rendered by a court or the Board in any proceeding identified pursuant to [37 C.F.R. § 41.37(c)(1)(ii)]" to be submitted.